

THE ROLE OF NETWORK CLUSTERS IN THE DEVELOPMENT OF INNOVATIVE ECONOMICS OF THE EUROPEAN REGIONS

Sergei I. Kovalenko*

1. Introduction

Cross-border cooperation becomes the key factor of European integration enhancement under those circumstances when in political and scientific discourse the concept “boundary” is perceived not as “boundary line”, but is transformed into “relationship factor” being understood “not as a line, but a functional space”, where “various communities and groups” interact.

Active formation of network forms of cross-border economic area self-organization corresponds to the impulse of establishing of the new economic reality of postmodernity that denies “total ideology”, but accepts the variety and freedom of economic choice. Network clusters become a new source of competitive advantages of the European regions involving Ukraine and change not only the local factors system, but also the structure of economic area itself. In large measure the implementation of cluster form of business organization in cross-border dimension makes it possible to develop the network structure of economic area, to enhance its unity and entity [1, p.4].

Nowadays the most efficient direction of innovative policy is the formation and development of cross-border clusters which become more popular in the world society on the international, national and regional levels.

Usage of cluster approach is an effective way of competitive recovery and of the small and medium business in regional economy. In this respect the task of formation of united innovative infrastructure, providing effective use of scientific and technological potential of cross-border regions, creating the conditions for modernization of the industry and the acceleration of development of its most successful and competitive segment, becomes the most significant one.

The necessity of development and realization of scientifically grounded regional economic policy concerning border regions and territories of Ukraine is evident within the framework of the processes of international economic integrity. As the experience of the countries involved in the processes of international integrity shows, under such conditions the status and role of the border regions in the development of national economy are sufficiently changed. The latter lose their “periphery” status and their “barrier” functions, being not only the transit corridor for innovations, goods and services, but also as regional “poles” of integrity and interplay of global and national economic areas.

The relevance of our investigation on one hand is determined by the important role of cross-border cooperation to enhance the competitiveness of periphery border regions, to decrease spatial differentiation between border and internal sub-regions and on the other, by not adequate investigation of theoretical and methodological aspects of the study of the mechanisms of cross-border cooperation. To make the cooperation more effective, to cancel the negative influence of the borders and to achieve full scale integral area, the modern regional policy of European Union motivated the search of new forms of cross-border cooperation [2, p.10].

* © Sergei I. Kovalenko; PhD; Associate Professor; Department of humanitarian sciences; Odessa National Maritime Academy; Ismail Faculty; E-mail: <econ69@mail.ru>.

2. Analysis of research and publications of recent years

An important contribution to the development of economic area theory was made by the representatives of institutional economics (O. Williamson [3], R. Coase [4], W. Nordhaus, F. Hayek). In their research work they paid attention to the lack of information being the hindrance to mutually agreed conditions, to the differences between evident and tacit knowledge focused on the study of the transaction expenses influence on the advantages of different organization forms.

In their works the existence and the importance of network clusters phenomenon was recognized and the growth pole and structures with direct and indirect links were investigated. Besides, there was considered agglomeration economy, economic geography, urban and regional economy, industrial regions and social structures.

Fundamentals of clusters theory of competitive advantages formation were formulated by A. Marshall [5, p.118] at the end of the XIX century, and the term “cluster” was offered by M. Porter in the 1980s. The term “innovation cluster” was widely used after the project of regional clusters development in the USA under the name “Clusters of Innovation” appeared [6, p.51]. It reflects the fact that the companies all over the world more often have to compete not only and not so much for the productivity, but for the innovation ability. The works of Ukrainian economists V. Heyets, N. Mikula, S. Sokolenko, M. Voinarenko, etc. are devoted to the investigation of clusters concept and the argumentation of organizational and economic mechanism of their formation. In the scientific works of the above-mentioned authors the theoretical and methodological aspects of competitive clusters development are stated.

The topical issue of clusters strategy implementation was investigated in the works of such Ukrainian scientists as B. Burkinski, V. Zakharchenko, V. Osipov, O. Krainik, M. Mikheyev, etc. But the advantages and possibilities of cluster approach usage to enhance the competitiveness of cross-border regions of Ukraine are still insufficiently covered.

3. Previously unsolved aspects of the problem

Nowadays global order is outlined around large power poles. European Union with its growing economic significance becomes a pole that requires the development and realization of the interrelation model of periphery regions of different countries which would correspond to the principles of regional policy of European Union, which would support the formation of new forms of cooperation in the format “region – region”.

The formation of network economy generates the need for the European regions development together with such new forms of cross-border cooperation as “cross-border clusters”, “cross-border industrial areas”, “cross-border partnership”, “cross-border innovative projects”, etc. As prospective ways of increasing competitiveness of the border regions of Ukraine, the creation of innovative cross-border clusters and industrial areas, trade and logistics canters should be considered. For this purpose there must be the practice of the realization of projects (together with foreign partners) concerning the formation of industrial territorial-sectoral production systems to enhance the competitiveness of the enterprises, effective local production and investment and financial attraction to develop the infrastructure of the region, to enhance the energy efficiency of the economy and to improve quality of the environment.

Using the cluster policy as the strategic instrument requires appropriate clarification. In spite of high popularity of cluster approach, there has not been found optimum way to define a cluster what makes it difficult to define the cluster policy. That is why cluster policy is used as generalizing name to define different ways of support and development of network union enterprises [7, p.74].

4. Statement of the problem

The aim of the article is to investigate the economic priorities of the European regions development involving Ukraine in conditions of European Union enlargement by means of creating cross-border cluster systems – institutions of network production integrity which become the poles of economic growth and competitiveness of the depressive periphery territories at the European market.

5. The main material research

Like cross-border region, cross-border market is viewed upon as single, whole, poly-structural formation. Its main specific nature is the border and the necessity to coordinate the activity of certain border territories. It is realized by means of cross-border cooperation in different organization forms.

The institutions of cross-border market combine the system of formalized rules and non-formalized relations of the participants with the external environment. Synergetic effect which appears as a result of cooperation of cross-border market subjects is explained by cost saving, property right specification, transaction cost saving (according to R. Coase) [4, p.78].

Cross-border industrial cooperation is viewed upon as the instrument of competitive recovery of periphery territories in terms of progressive technological development and the emergence of dominant technology of a new technological mode. The competitiveness of regions is the necessary condition of joining the global market and global exchange system, and cross-border regions are intensively developed in terms of globalization. Characterizing modern tendencies of production process change, M. Castells underlined that networks present the fundamental material out of which new organizations would be built. One of possible forms of network organization structures, which firmly occupied the place in modern economic theory and practice, are the clusters. According to M. Porter, “cluster is a network form which occurs in the range of geographical location where closeness of firms and institutions guarantees some forms of community and increases frequency and influence of cooperation” [6, p.117].

The main task of cross-border clusterization is to enhance the competitiveness of cross-border region economy. It will not only give odds to the participants of business in terms of productiveness growth, transaction cost saving, wide access to market outlets, technologies, economy of scale and getting a synergetic effect, but it also contributes to the strengthening of competitive status of the European region, promotion of business activity, enhancing of investment prospects, facilitating of the most rational use of the resources, improvement of innovation environment, growth of export potential and providing steady development of social processes.

According to M. Porter, geographical clusterization is one of the most dynamic and quickly spread processes of modern economic development [7]. The experts of Economic Cooperation and Development Organization state that innovation clusters are “engines of economic growth of national economies and the realization of clusters initiatives is the key instrument of making countries competitive”. The given thesis is confirmed by statistics which shows the role of clusters in economic development of some countries. At the beginning of 1980-s cluster concept became of practical importance – it transformed into the key element of economic and innovation policy of the leading countries of the world and cluster initiatives got the status of effective instruments of competitive growth of single regions and national economies as well.

In spite of the popularity of cluster subject, two key aspects still remain controversial – what cross-border cluster is and how to develop it.

The problem becomes complicated because independent subjects of economic activity of postmodernity resist directed centralized management and the clusters can be formed only from

below. Incredible as it may seem, but network clusters cannot be formed in the truest sense of the word. In all importance of external stimulation of cauterization process, for example, in the form of national policy, the key place in each cluster taken by its history, by the trajectory of the previous development, is inseparable from the local institutional environment of the region and the special aspects of the certain object. Investigation of the cluster as an object showed that together with the clusters there exist a great majority of similar theories, in relation to which clusters, as usual, serve as unifying theory. It is our understanding that cross-border network cluster is a dynamic self-organized system generating innovations in the form of knowledge, new technologies and products under sufficient effectiveness of its participants at the expense of their synergy and group action [8, p.29].

It can be said that cross-border network clusters are geographic concentrations of inter-related enterprises (suppliers) of one or more innovation branches (including venture companies, universities, research and commissioning organizations, marketing and information agencies) and cooperating institutions that function on both sides of the border of the counties which compete, but at the same time cooperate with each other, gaining the benefit from specific local assets, joint cross-border location and embeddedness into economic and social area of the European region.

From the network theory point of view, clusters can be characterized as network of inter-related companies (including specialized suppliers) connected with each other into the chain of added value creation and the spread of new knowledge, products and technologies on the territory of the European region, which mutually contribute to the growth of innovation competitiveness of periphery regions by means of greater transparency of new technologies, risks distribution and transport cost saving.

Network cluster is a self-organizing system in economics one of the main important order parameter of which is the structure being inter-related with the institutional environment. Cross-border clusters were created in Europe together with the European regions formation. Many of them work without coordination structures or use the services of regional development agencies being at the same time participants of the European regions. The European regions can be used as coordination structures of those cross-border clusters the participants of which are the economic management subjects of Ukrainian border regions. At the same time the cooperation in the sphere of culture is spread on the education and science, tourist and recreation activity which resulted in the increase of border habitants activity, their participation in social organizations, etc. The activation of cooperation and its promotion on the part of European Union resulted in theories of mutual development of the European regions which in their turn helped to work out the strategies of mutual development of cross-border regions and the mechanisms of their realization.

Detailed analysis of social and economic development of cross-border region which was herein made, allowed to work out more significant cross-border projects, for example, creation of joint production areas or formation of cross-border clusters. Thus, the necessity of creating of competitive economic system in cross-border region stimulated the search of decision from the perspective of possibilities of mutual usage of existing and creation of new capacities and also the development of production and technical cooperation (agricultural, industrial enterprises, service organizations, innovation and investment activity) [9, p.12].

Cross-border cluster systems embrace adjoining border territories of neighboring countries which include groups of independent companies and associated institutions, geographically located in cross-border region. The peculiarity of cross-border clusters is the necessity of taking into account by the participants of cross-border institutions different tax, customs and legislative environment of neighboring countries in their activity. Clusters, using local natural and resource, social and economic, infrastructural potential, geographical and economic location of the territories of cross-border countries enhance the competitiveness of the regions, provide adequate standard of living of the inhabitants. Within them there are created the conditions to form and develop technical

parks, logistic canters, techno-policies and other innovation forms of economic activity organization.

The main tasks of formation and support of the cross-border development are:

- 1) competitive recovery of cross-border regions, enhancing of human life index;
- 2) promotion of new and development of existing European regions as institutional platform to reveal cross-border cluster initiatives and development of cross-border clusters;
- 3) providing of innovation and investment model of development of enterprises and other subjects of economic activity located in cross-border regions, implementation of new technologies in the production of goods and services.

Cluster advantages are fully realized only due to such modern managing technologies as subcontracting and outsourcing – “falling externally”, based on the emphasizing of key cooperation positions and focusing all economic ties on them. The process of subcontracting provides the existence of the main enterprise – “contractor” and a great majority of small and middle enterprises – “subcontracting”. Contractor or subcontractor makes an agreement according to which the contractor entrusts one or more enterprises (subcontractors) to produce details, components or key parts necessary to produce the final product. Outsourcing provides the cooperation under which “external” company which sells its goods and services to the customer is included into “managing outlines” of the customer as functional element in which case being legally and managerial independent.

Cluster approach naturally combines interests of business and territory as under this form of economy organization it is possible to mutually intensify their competitiveness. Cluster approach is directly connected with competitiveness recovery of the territory not only because it simultaneously influences the competitiveness basis (efficiency and employment), but also because it removes the contradiction between them. The level of labour productiveness in a cluster grows due to the specialization and outsourcing of incidental activities, the level of employment – due to the participation and formation of new subjects of economic activity in related and supporting branches.

Network clusters formation results in efficient competitive recovery of the European regions' economy due to several factors. Firstly, it is the reducing of transaction expenses at the expense of more efficient realization of long-term contract between industrial organizations, financial credit institutions, trade organizations, scientific and innovation organizations; fulfillment centralization of a range of general functions of companies-participants of a cluster; implementation of general cluster of informational and analytical system that promotes information exchange between the participants either vertically or horizontally. Secondly, it is the possibility to provide competitive advantages at the expense of better quality and price of the goods selling; innovation potential, sufficiency of production and merchandising power; existence of long-term strategy of activity; optimization of external and internal cluster connections. Thirdly, it is the possibility to use the potential of mutually beneficial long-term business relations; to develop the system of mutual deliveries within a cluster, built on the principles of trust; to form general sales network; to carry out intensive exchange of information, financial, human, innovation resources; to reduce the functioning risks at the expense of level of profitability reducing of the enterprises participating in a cluster; to follow the priorities of external cluster planning and the aims and tasks being set; to develop the system of cross-shareholdings within a cluster. Fourthly, it is a profit based upon the theory of production and financial management which includes:

- Economy at the expense of economy of scale;
- Efficient use of natural resources potential of the region;
- Diversification that provides the risks cushioning;
- Synergetic effect.

Therefore, it is possible to give the following definitions of the economic area which in general present dialectical unity:

- 1) the territory of siting and interaction of business entities, relations between which are formed in a certain social and economic environment;
- 2) social and economic environment of business entities cooperation formed by the mechanisms of economy control applied on the territory.

In the process of transition to post-industrial development the function of cross-border area as the development environment will be enhanced so much that it could become a new important siting of productive forces.

Autonomy of cross-border economic environment as siting and production factor proves the possibility of synergetic effect formation, added value formation at the expenses of business entity interaction which is an essential element of economic area.

In the process of European integrity the border regions reconstruct their economic area: from semicircular determined by precedence of barrier function of the border up to circular determined by weakening or disappearing of this function. Respectively, during the European integrity processes the border regions cease to bear the name “periphery” on the national level, becoming full players (agents) of the united European economic area.

6. Conclusions and recommendations for further development

In the economic area of postmodernity the main objects of efficient economic board become industrial business networks which under the influence of globalization and internationalization processes obtain the form of “hybrid” institutions of horizontal integration – network clusters – which are the agents of technological changes as they unite the scientific research organizations and their commercialization and manufacturing application.

On its way to join European Union, Ukraine has to sum up the experience of cross-border cooperation being a preliminary and supplying stage of integration in the regions:

- 1) to form integral and efficient policy of cross-border cooperation development in Ukraine it is necessary to work out the theory and methods of cooperation basis and to justify new forms and mechanisms of its extension in the light of cross-border network clusters concept;
- 2) nowadays it is of immediate interest to work out and implement cross-border strategy of European regions development taking into account European experience of cross-regional strategies, the object of which is the steady social and economic development of European regional system as read in conjunction with its human, natural, resource and industrial potential and institution environment;
- 3) in our opinion, it is useful to use European experience concerning competitive recovery of border regions by means of cross-border clusters creation. It will allow strengthening of institutional ability of European regions, will help to organize the education and train highly qualified personnel in the sphere of cross-border cooperation and as the final result it will bring the opportunity to get network and synergetic effects in economic environment involving cross-border regions of Ukraine.

Thus, investigation and analysis of worldwide progressive experience in formation and development of cross-border clusters will make it possible to successfully realize the tasks of Strategy for Innovation Development of Ukraine for 2010-2020 under the conditions of grand challenges, secure funds in the modernization of industry, to develop the national innovation system. The creation of cross-border innovation clusters system which provides for intensive exchange of resources, technologies and know-how is achieved by strengthening of competitive

positions of home companies at European market and by the growth of innovation potential of Ukrainian economy in the process of European Union extension.

References

1. Declaration concerning regionalism in Europe / Assembly of European Regions. – Strasbourg: Secretariat General Immeuble Europe, 1996. – 10 p.
2. Cluster policy in Europe/ A brief summary of cluster policies in 31 European countries. – Europe Innovation Cluster Mapping Project. – Oxford Research AS, January 2008. – 34 p.
3. Williamson O. The Economic Institutions of Capitalism / O. Williamson. – New York: Free Press, 1985. – 450 p.
4. Coase R. G. Nature of the Firm / R. G. Coase // Lessons business organization. – St. Petersburg, Lenizdat, 1994 – 29 p.
5. Marshall A. Elements of Economics of Industry Being the First Volume of Elements of Economics / A. Marshall. – L., 1928.
6. Porter M. E. Clusters and competition: new agendas for companies, governments, and institutions // M. E. Porter. – MA: Harvard Business School Press, 1998.
7. Porter M. The Competitiveness Advantage of Nations / M. Porter. – London: Macmillan, 1990.
8. Armstrong H. W. The Role and Evolution of European Community Regional Policy / H. W. Armstrong, B. Jones, M. Keating // The European Union and the Regions. – Oxford: Clarindon press, 1995. – Pp. 23–62.
9. Anderson N. V. Ukraine-EU Trans-Border Cooperation: Developing Euroregions on the Border (The Case Study of Lower Danube) / N. V. Anderson // In: Democracy vs. Authoritarianism. Abstracts. Warsaw East European Conference 2007. – Warsaw, 2007. – Pp. 11–12.

Summary

Intensification of the problems of global unsteadiness at the beginning of the XXI century calls for the development of innovative forms of cross-border cooperation in the framework of the European regions. In the article it is stated that cross-border cluster unities in accordance with the worldwide experience become new forms of innovative development of the European regions with the involvement of Ukraine.

The essence and inner interrelations of cross-border network cluster is investigated as the growth factor of the European region competitiveness under the conditions of intensifying the integration processes and the necessity of enhancement of the role of periphery regions' economy in the framework of cross-border cooperation. The theory and methodology of the cross-border network clusters formation are systematized in the article. Within the context of European Union regional politics the strategic priorities of the spatial development of the European regions are stated on the basis of self-organization of "hybrid" network quasi integration institutions. Their role in the competitive recovery of the European regions in the light of Ukrainian perspectives of joining European Union is investigated.

Keywords: cross-border cooperation, network cluster, innovations, European region, integration, synergetic effect, cross-border expenses, outsourcing.

JEL classification: C12, C14, C18

UD classification: 339.92:332.1

Date of acceptance: 22.09.2014.